

Skaftáreldahraun (Eldhraun)

Information Sheet



Location: SKAFTÁRELDHRAUN (ELDHRAUN)

Conservation designations: National environmental protection law

Grid reference: 63°44'47.8"N; 18°09'39.0"W

Address: Route 1, rest stop, Gesosite "Skaftáreldahraun (Eldhraun)"

Parking available: Yes, free parking available on site. Parking can be troublesome in summer times during high season.

Personnel to be contacted prior to visit: None

Useful equipment:

- Stationary
- Notebook
- Camera
- Task sheet
- Optional: Binoculars/hand lens

Relevance national curriculum:

- Local and national history, geological formations, drift of tectonic plates, volcanic activity

Rock types and geological processes observed: Basalt (plagioclase, pyroxene), fissure eruption, lava flow, degassing of lava, crystallization of lava.

Geological structures: basic and intermediate lava from surface fissure eruption, AA lava, pahoehoe.

Earth processes: eg. Hot-spot, divergent plate boundaries, extrusion.

Geological periods present: 1783-present, Holocene

Site specific hazards and risks:

- Sharp lava surface
- Moss covered lava with cracks and holes
- Weather conditions
- Fragile moss cover

Mitigation measures:

- Moss coverage is extremely fragile. Avoid stepping on living moss.
- The lava can be very sharp. Take extreme care when navigating the paths.
- Be vary of holes and cracks in the lava.
- Prepare for weather conditions, look at forecast prior to visit.
- Wear appropriate footwear

Did you know: The aftermath of the eruption in Lakagígur 1783-1784 that created the Skaftáreldahraun (Eldhraun) is believed to have resulted in the deaths of 6 million people, making it the deadliest in historical times. Excellent farming land was destroyed resulting in the abandonment of 20 farms in the area and the death of c. 6,000 people, around 20% of the population of Iceland and over 50% of the livestock population. Eldmessutangi (Fire Sermon Point) is the point where an encroaching lava branch flowing from the voluminous Laki crater eruptions miraculously stopped. The relieved residents of the village credited the local pastor, Reverend Jón Steingrímsson (and presumably his God!), with their deliverance. He had previously preached his so-called fire sermon, which must have been the ultimate fire-and-brimstone sermon with lava and tephra raining down on his parish. A more mundane explanation is that the lava was stopped by the Skaftá river. Regardless of which theory you subscribe to, the fact remains that during the sermon the lava stopped just to the west of Systrastapi, and the lava point marking its terminus can still be seen to this day. There is another layer of underlying lava from a previous massive eruption in this area from Eldgjá in the years 934-939. Even older lavas can be found in areas. The Eldgjá eruption was a major event due to its magnitude and environmental impact. An estimation of 220 Megatons of SO₂ (Sulfur dioxide) was emitted from both vent and lava flow degassing. Making it the greatest volcanic pollutant from a lava flow, exceeding the Tambora eruption in 1815 and the Laki eruption 1783-84. This affected the worldwide climate with unusually cold winters and crop failure in Europe and Asia.

Topics to cover before visit: Basic knowledge of plate tectonics, types of lava, concept of lava streams and their internal structures, environmental impact of massive eruptions, historical references.

Keywords: Eruption, Laki, lava flow, pahoehoe, lava morphology, basalt, environmental impact, local, regional and national history.



Stop 1-4: A platform with an overview of the lava and moss cover.



Stop 5: Hidden remains of a farmstead surrounded by lava.



Stop 6: Looking up the Fjaðrárgljúfur canyon.

Geological history*:

Skaftáreldahraun (locals refer to it as Eldhraun) was produced in an eruption known today as Laki in 1783-84 in what became known as "Skaftá Fires". It was one of the largest basaltic eruptions in recorded history where in mere 8 months, more than 14 km³ (42 billion tons) of lava erupted creating an estimate of c.600 km² lava field with most of the lava being ejected in the five first months. It created a 27 km long eruptive fissure consisting of 130 craters SW of Vatnajökull glacier on the active margin of the tectonic boundaries. The craters opened with phreatomagmatic explosions due to the groundwater interacting with the rising magma. Gas clouds of hydrofluoric acid and sulphur dioxide were emitted in awesome quantities, contaminating soil in Iceland and affecting the world-wide climate, dropping temperatures, affecting precipitation and ruining crops worldwide, mainly in Europe, Asia and N-Africa. Lakaqígar is the correct name (Craters of Laki), as Laki mountain did not erupt but fissures opening up on each side of it. Lakaqígar is part of the volcanic system centered under the volcano Grímsvötn under Vatnajökull glacier.